

14

MS#304810.01 (5075)
PATENT**Amendments to the Drawings:**

Replacement sheet 4/4 replaces the original sheet 4/4. In replacement sheet 4/4, and as shown in annotated sheet 4/4, the reference character 166 originally shown in FIG. 4 has been amended to designate the interface component. In addition, reference character 123 has been deleted from FIG. 4.

Attachment: Replacement Sheet 4/4 and Annotated Sheet 4/4.

15

MS#304810.01 (5075)
PATENT**REMARKS**

Applicant has thoroughly considered the December 7, 2005 Office action and has amended the application to more clearly set forth the invention. Applicant respectfully requests entry of the amendments to the drawings to correct minor errors. Claims 15-16, 19-22, 34, 35, 46, and 51-54 have been amended by this Amendment A. Claims 1-56 are presented in the application for further examination. Reconsideration of the application as amended and in view of the following remarks is respectfully requested.

Response to Drawing Objections Under 37 C.F.R. 1.84(p)

Applicant submits herewith an amended FIG. 4 to overcome the objection. In the amended figure, the reference character 166 has been amended to designate the interface component and reference character 123 has been deleted. No new matter has been added to FIG. 4.

Claim Rejections Under 35 U.S.C. §112

Claims 15, 16, 34-36, and 46 stand rejected under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the invention. Applicant respectfully disagrees.

First, with respect to claims 15, 16, 34, 35, and 46, the Office asserts that the term "substantially" is indefinite (citing *Ex parte Oetiker*¹). In *Ex parte Oetiker*, the phrase **substantial portion** was held indefinite because the term was not defined in the claim and the specification did not provide a standard for ascertaining the requisite degree of definiteness. However, the MPEP, in section 2173.05(b)D, explains that the use of a relative term, such as "substantially," does not automatically render a claim indefinite. The court in *In re Mattison*² held that the limitation "to **substantially increase** the efficiency of the compound as a copper extractant" was definite in view of the general guidelines contained in the specification. And, in *Andrew Corp. v. Gabriel*

¹23 USPQ2d 1641 (Bd. Pat. App. & Inter. 1992).

² 509 F.2d 563, 184 USPQ 484 (CCPA 1975).

16

MS#304810.01 (5075)
PATENT

*Electronics*³, the court held that the limitation "which produces **substantially equal** E and H plane illumination patterns" was definite because one of ordinary skill in the art would know what was meant by "substantially equal."

Claims 15 and 34, as amended, recite "determining which of the tables **substantially matches** the search criteria". Claim 46, as amended, recites a procedure component that "determines which of the tables **substantially matches** the search criteria". Amended claims 16 and 35 recite "identifying which of the tables **contains** metadata associated with substantially all of the attributes and measures specified in the search criteria" where "the search criteria specifies one or more attributes and measures".

Unlike *Ex parte Oetiker*, where the claims recited "**substantial portion**", the claims of the present application do not include the term "**substantial**". Instead, the claims of the present application include the phrases "**substantially matches**" and "**substantially all**" in a manner similar to *Andrew Corp.* and *In re Mattison*. Because Applicant discloses a standard for ascertaining the requisite degree definiteness, these phrases are not indefinite to one skilled in the art. For example, in paragraph 28 of the present application, Applicant describes one embodiment of the invention in which the "procedure component 162 takes the inputs, **matches** them with metadata layer 164, and constructs a set of SQL statements to retrieve data from database 172 in an efficient manner (e.g., the most efficient believed possible **based on the the smallest fact table that contains all attributes and the most measures**).". Therefore, the claims are definite and the rejection of claims 15-16, 34-35, and 46 should be withdrawn.

Second, with respect to claims 15, 34, and 46, the Office states that the term "size" is not defined by the claim and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. However, breadth of a claim is not to be equated with indefiniteness⁴. Moreover, Applicant is only required to provide a reasonable degree of particularity and distinctness. In this regard, MPEP section 2173.02 states that "only when a claim remains insolubly ambiguous without a

³ 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988)

⁴ MPEP §2173.04.

17

MS#304810.01 (5075)
PATENT

discernible meaning after all reasonable attempts at construction must a court declare it indefinite"⁵.

Claims 15, 34, and 46 recite that the predefined "procedure constructs the query based on the matched table having the **smallest estimated size**". In other words, the procedure will construct the query based on the matched table having the estimated size that is **smallest relative** to the estimated sizes of any other matched tables. Therefore, the term "size" may relate to a plurality of different table properties and one or more of these properties may be used to estimate the size of the table. But the term "size" is not indefinite because the modifier "smallest" indicates that however the estimated size is determined for each table, the procedure will construct a query based the table having the smallest estimated size relative to the other matched tables. Therefore, the rejection of claims 15, 34, and 46 and claims 16 and 35 depending therefrom should be withdrawn.

Claim Rejections Under 35 U.S.C. §102

Claims 1, 4, 5, 9, 10, 24, 25, 37, 38, 40, 41, 47, and 56 stand rejected under 35 U.S.C. §102(e) as being anticipated by Lee et al. (U.S. Pub. App. 2003/0028550). Applicant respectfully disagrees.

Lee et al. disclose systems and methods for maintaining workflow information, including workflow-related metadata in tables in a database. (Lee, page 7, paragraph 128). Lee et al. further teach that stored procedures execute SQL statements to perform operations on the workflow information and that the procedures may be generated "in response to user input specifying the **column definitions, e.g., data type and length, for the workflow related tables**". (Lee, page 7, paragraph 134 and page 9, paragraph 150) In other words, the procedures may be generated as a function of the **table** characteristics, but not the actual metadata stored within the tables.

With respect to the present invention, claim 1 recites a procedure that constructs "a query as a function of the characteristics of the data as described by the metadata for optimizing retrieval of the selected data". As such, embodiments of the invention greatly reduce the need for customized code and the development time

⁵ Quoting *Metabolite Labs., Inc. v. Lab. Corp of Am. Holdings*, 370 F.3d 1354, 1366 (Fed. Cir. 2004).

18

MS#304810.01 (5075)
PATENT

needed to expose data warehouse relational data in a flexible and generic manner and, thus, make existing data in relational tables more accessible to ad hoc queries.

The cited art merely discloses that a procedure may be generated as a function of the **table** characteristics, but not the actual metadata stored within a table. Furthermore, Lee et al. are silent with regard to optimizing the retrieval of data from the database as function of the **metadata**. In contrast, the present invention generates or constructs a query to the database as a function of the **metadata** and that the retrieval of the data from the database is optimized as a function of the metadata. (Application, page 9-10, paragraph 28). Thus, Lee et al. fail to teach or suggest that the procedure generates or constructs a query that optimizes the retrieval of data from the database as a function of the **metadata** as recited by the claim 1.

Claim 25 recites a procedure for generating "a set of structured query language (SQL) statements as a function of the comparison between the search criteria and the **metadata attributes for implementing the query to optimize retrieval of the selected data from the database**". And, claim 38 recites a procedure component that constructs "the query as a function of the characteristics of the data as described by the **metadata component for optimizing retrieval of the selected data**". As explained above, the cited art only shows performing operations on table characteristics and not metadata and, thus, does not anticipate the claimed invention.

For at least these reasons, Applicant submits that the cited reference fails to teach or suggest each and every element of claims 1, 25, and 38. As such the rejection of these claims under 35 U.S.C. §102 must be removed. Claims 4, 5, 9, 10, and 24 depend from claim 1; claim 37 depends from claim 25; and claims 40, 41, 47, and 56 depend from claim 38. The dependent claims are believed allowable for at least the same reasons as claim 1, 25, and 38 from which they depend.

Claim Rejections Under 35 U.S.C. §103

Claims 2, 3, 6-8, 11, 13, 26-30, 32, 39, 42, 44, 45, and 48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lee et al. in view of Fayyad et al. (U.S. Pat. 6,549,907). Applicant submits the cited references, whether considered separately

19

MS#304810.01 (5075)
PATENT

or together, fail to teach or suggest every limitation of the invention as claimed by Applicant.

Fayyad et al. disclose an apparatus and method for compressing contents of a database system to support queries. (Fayyad et al, column 3, lines 1-6). This reference teaches that contents of the database are represented by a probability distribution consisting of a mixture of Gaussians. (Fayyad et al, column 5, lines 23-26). Queries are answered by performing integration over the probability distributions and not by retrieving data from the database. (Fayyad et al, column 9, lines 1-29). Accordingly, the Fayyad et al. reference fails to teach or suggest a predefined procedure that generates or constructs a query to optimize the retrieval of data from the database as a function of metadata as claimed by Applicant. Thus, Fayyad et al. fail to cure the deficiencies of the primary reference and the rejection of the claims under §103 should be withdrawn.

In addition, claims 2, 3, 6-8, 11, and 13 depend from claim 1; claims 26-30, and 32 depend from claim 25; and claims 39, 42, 44, 45, and 48 depend from claim 38. Thus, these claims are believed to be allowable for at least the same reasons as claim 1, 25, and 38 from which they depend and the rejection should likewise be withdrawn.

Claims 12 and 31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lee et al. in view of Diamond (U.S. Pat. 6,269,368). Claim 12 depends from claim 1 and claim 31 depends from claim 25. Thus, claims 12 and 31 are believed allowable at least the same reasons as claim 1 and 25 from which they depend. The Office contends that Diamond teaches generating a SQL view to display information relating to a query constructed according to the predefined procedure of claims 1 and 25. But the Diamond patent fails to cure the deficiencies of Lee et al. The Diamond patent purports to improve information retrieval by dynamically combining evidence information produced by a plurality of retrieval systems. The Diamond information retrieval system matches alternative representations of queries with alternative representations of documents. Because the cited art fails to teach or suggest each and every limitation of Applicant's claim 1 or 25, including a predefined procedure that generates or constructs a query to optimize the retrieval of data from the database as a function of metadata, Applicant submits the claims are allowable.

20

MS#304810.01 (5075)
PATENT

Claims 14-16, 33-35, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Fayyad et al. and in further view of Quernemoen (U.S. Pat. 6,542,893). However, claims 14-16, depend from claim 1; claims 33-35 depend from claim 25; and claim 46 depends from claim 38. Thus, claims 14-16, 33-35, and 46 are believed to be allowable for at least the same reasons as claim 1, 25, and 38 and the rejection should be withdrawn.

Claims 17 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Lei et al. (U.S. Pub. App. 2004/0139043). Applicant submits that the cited art, whether considered separately or together, fails to teach or suggest the claimed invention. Lei et al. merely teach the use of metadata for filtering out rows and columns of data to restrict access to that data. As a result, Lei et al. teach away from constructing a query as a function of the characteristics of data as described by metadata for optimizing retrieval of selected data. In addition, claim 17 depends from claim 1 and claim 49 depends from claim 38 and, thus, these claims are believed to be allowable for at least the same reasons as claim 1 and 38, respectively.

Claims 18-22, 36 and 50-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Listou (U.S. Pat. 6,134,564). Listou discloses using text data objects to categorize graphic images or audio files and constructing a sort order to display a list of selected text data objects. But Listou does not show constructing a query as a function of the characteristics of data as described by metadata for optimizing retrieval of selected data. Thus, the cited art, whether considered separately or together, fails to teach or suggest all of the elements of Applicant's claimed invention. Moreover, claims 18-22, depend from claim 1; claim 36 depends from claim 25; and claims 50-54 depend from claim 38. Thus, claims 18-22, 36 and 50-54 are believed to be allowable for at least the same reasons as claim 1, 25, and 38.

Dependent claims 19-22 and 51-54 stand rejected because they do not carry any patentable weight. Claims 19 and 51 have been amended to recite "wherein the query syntax includes a user-selected input representative of the column list parameter and ...". Claims 20-21 and 52-53 have been amended to recite "wherein the query syntax includes a user-selected input representative of the slice parameter and ...". Claims 22

21

MS#304810.01 (5075)
PATENT

and 54 have been amended to recite "wherein the query syntax includes a user-selected input representative of the options parameter and ...". Applicant submits that the claims as amended refer to features that are positively recited in the claims and carry patentable weight. Thus, the rejection of claims 19-22 and 51-54 should be withdrawn.

Claims 23 and 55 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Owens et al. (U.S. Pat. 6,047,284). Owens et al. merely disclose accessing a relational database through an object-oriented querying interface. In contrast to Applicant's claimed invention, Owens et al. do not show constructing a query as a function of the characteristics of data as described by metadata for optimizing retrieval of selected data. Thus, the cited art, whether considered separately or together, fails to teach or suggest all of the claimed elements. Moreover, claim 23 depends from claim 1 and claim 55 depends from claim 38 and believed allowable for at least the same reasons as claim 1 and 38 and the rejection should be withdrawn.

Claim 43 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Anand et al. (U.S. Pat. 5,692,181). Anand et al. teach using metadata as a simple mapping of a business concept to a column in a table. (Anand, column 17, lines 59-61). The user can create the metadata, i.e., the mappings. Thus, the query is a straight mapping and does not try to optimize the query as a function of the metadata. For these reasons, Applicant submits that the cited combination of references fails to teach or suggest constructing a query as a function of the characteristics of data as described by metadata for optimizing retrieval of selected data. Moreover, claim 43 depends from claim 38 and is believed allowable at least the same reasons as claim 38. Thus, the rejection should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant submits that independent claims 1, 25, and 38 are allowable over the cited art. The claims depending from these claims are believed to be allowable for at least the same reasons as the independent claims from which they depend.

22

MS#304810.01 (5075)
PATENT

It is felt that a full and complete response has been made to the Office action and, as such, places the application in condition for allowance. Such allowance is hereby respectfully requested. Although the prior art made of record and not relied upon may be considered pertinent to the disclosure, none of these references anticipates or makes obvious the recited invention. The fact that the Applicant may not have specifically traversed any particular assertion by the Office should not be construed as indicating Applicants' agreement therewith.

The Applicant wishes to expedite prosecution of this application. If the Examiner deems the claims as amended to not be in condition for allowance, the Examiner is invited and encouraged to telephone the undersigned to discuss making an Examiner's amendment to place the claims in condition for allowance.

The Commissioner is hereby authorized to charge any deficiency or overpayment of any required fee during the entire pendency of this application to Deposit Account No. 19-1345.

Respectfully submitted,



Robert M. Bain, Reg. No. 36,736
SENNIGER POWERS
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

RMB/BAW/cjl